

REMARKS

Claims 1, 7, 9, 10 and 12-14 are pending in this application.

No claim has been amended.

Claims 7, 9 and 10 are objected to a being dependent on a rejected claim.

I. Claim Rejections – 35 U.S.C. §112

Claim 1 and 12-14 stand rejected under 35 U.S.C. §112, first paragraph as failing to comply with the enablement requirement.

1. Analysis of the enablement

The standard for determining whether the specification meets the enablement requirement was cast in the Supreme Court decision of *Mineral Separation v. Hyde*, 242 U.S. 261, 270 (1916) which postured the question: is the experimentation needed to practice the invention undue or unreasonable? That standard is still the one to be applied. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). "The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation." *United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988).

A patent need not teach, and preferably omits, what is well known in the art. *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); *Hybritech, Inc. v.*

Monoclonal Antibodies, Inc., 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987); and *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984).

The factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue" include, but are not limited to: (A) The breadth of the claims; (B) The nature of the invention; (C) The state of the prior art; (D) The level of one of ordinary skill; (E) The level of predictability in the art; (F) The amount of direction provided by the inventor; (G) The existence of working examples; and (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)

In the Office action (Paper No. 20050616), the examiner analyzed the enablement issue by listing the factors in *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

The examiner argued that (1) the claim is broad; (2) the nature of the invention is compounds used as a host material to form an emissive layer of an OLED; (3) the prior art teaches similar compounds without the various substitutions; (4) the ordinary artisan is highly skilled; (5) the level of predictability in the art is unknown (the examiner has changed his position by saying that the art is highly unpredictable in the subsequent Office actions); (6) the inventor provides very little direction in the instant specification, and there are no examples of the compounds with these substitutions; (7) the instant specification does not have any working

examples, and none of the compounds have all these various substitutions; and (8) since there are no working examples, the amount of experimentation is very high and burdensome.

In response to the examiner's rejection, the applicant explained in the Response filed on November 13, 2006 why the examiner's analysis is not proper or sufficient to support the enablement rejection for the following reasons.

The applicant analyzes the Wands factors herein again.

With respect to the factor (1), the listed R1-R10 in claim 1 are well-known chemical groups and are sufficiently specified with the carbon numbers. The listed R1-R10 are not merely recited as alkyl or aryl. It should be noted that R1-R10 are substituents for the hydrogen atoms bonded to a basic 2-phenyl quinoline structure included in the compound of Formula 1.

With respect to the factor (2), the examiner did not provide any related reasoning to support her rejection.

With respect to the factor "(3) the state of the prior art", unlike the examiner's reasoning, the '656 publication taught the modification of the arylquinolines of Fig. 49 by adding alkyl or aryl.

With respect to the factor (4), the examiner admitted that the ordinary artisan is highly skilled. That is, one of ordinary skill in the art would be able to readily determine which embodiments are operable. The examiner's reasoning support the enabling as shown in *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). ("The Court held that the specification was enabling with respect to the claims at issue and found that ...there was a high

level of skill in the art at the time the application was filed... 858 F.2d at 740, 8 USPQ2d at 1406.” See MPEP 2164.01(a).

With respect to the factors (5)-(8), the examiner did not consider the disclosed working examples, but the examiner’s reasoning is mainly based on that there is no working examples of the compounds with R1-R10 other than H. It should be considered that the present application provides the synthesis examples of the compounds of Formulae 2, 3, 4, 5, 6, and 7, and the OLED examples 1, 2 and 3 using the compounds of Formulae 5, 3 and 4, respectively. From the specification including the synthesis examples and the examples, there was considerable direction and guidance in the specification. Also, as admitted by the examiner, there was a high level of skill in the art at the time the application was filed. Particularly, the examiner’s reasoning regarding the factor (8), the fact that the working example for the specific species (i.e., the compounds with R1-R10 other than H) are not disclosed does not necessarily mean that the amount of experimentation is very high and burdensome. The examiner disregards the fact that the claimed compounds may be extrapolated by one of skill in the art to from the present specification and the present disclosed working examples, and one of ordinary skill in the art would be able to readily determine which embodiments are operable. Even if experiment is necessary, it is not undue. (The test of enablement is not whether any experimentation is necessary, but whether, if experimentation is necessary, it is undue. *In re Angstadt*, 537 F.2d 498, 504, 190 USPQ 214, 219 (CCPA 1976)).

Please note that the CCPA stressed that not every species encompassed by the claims, even in unpredictable arts, need to be disclosed. The court observed that if §112 required a disclosure of a test with every species covered by a claim in an unpredictable art, then a prohibited number of actual experiments would have to be performed, discouraging the filing of patent applications in unpredictable areas. *In re Angstadt*, 537 F.2d at 503, 190 USPQ at 218.

As long as the specification discloses at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. 112 is satisfied. *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970). Failure to disclose other methods by which the claimed invention may be made does not render a claim invalid under 35 U.S.C. 112. *Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 1533, 3 USPQ2d 1737, 1743 (Fed. Cir.), cert. denied, 484 U.S. 954 (1987).

2. In the final Office action (Paper No. 20070123), the examiner counterargued that the applicant's analysis is improper by pointing out only one factor among the Wands factors.

The examiner did not provide the full analysis in response to the applicant's argument.

Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it. MPEP 707.07(f). If the examiner disagrees with the applicant, the applicant respectfully requested the examiner to provide the detailed reasoning, e.g., whether the rejection is directed to "how to make" and/or

“how to use” and why the applicant’s reasoning for “how to make” or “how to use” is not correct).

The examiner’s argument is not sufficient to support the rejection under the enablement requirement. The examiner argued that “the variables should give different color emissions and may have different carrier transport rate.”

The examiner cited the paragraph [0171] in Thompson ‘656: “These molecules, related to Ir(ppy)₃, can be formed from commercially available ligands. The R groups can be alkyl or aryl and are preferably in the 3, 4, 7 and/or 8 positions on the ligand (for steric reasons). The compounds should give different color emission and may have different carrier transport rates. Thus, the modifications to the basic Ir(ppy)₃ structure in the three molecules can alter emissive properties in desirable ways.”

The examiner’s reasoning is not sufficient to reject claims. The cited paragraph by the examiner teaches that the modification of the substituents may change the absorption properties. However, it does not say that the change (in the absorption properties) caused by the addition of alkyl or aryl is so significant that undue experiments may be required to determine the properties. For example, the paper of Journal of Materials chemistry, 2003, 13, 50-55 shows in Fig. 1 changes of the intense absorption band, caused by the addition of alkyl or aryl to the PPy molecule (which is the same material cited by the examiner), and states that “modification of the PPy molecule by adding alkyl or alkoxy groups to the phenyl ring has little influence on the absorption properties of the corresponding iridium complexes.” (See the bottom of page 52 to the top of page 53.) The paper is attached hereto as Appendix 1. That is, even if there is a

change caused by adding alkyl or alkoxy groups to the phenyl ring of the Ppy molecule, the change is insignificant. Therefore, the examiner's reasoning is not sufficient to support a determination that a disclosure does not satisfy the enablement requirement and that necessary experimentation is "undue."

Furthermore, claims are not necessarily invalid even if they encompass some inoperative embodiments. *Atlas Powder Co. v. E.I. duPont de Nemours & Co.*, 750 F. 2d 1569, 224 USPQ 409 (Fed. Cir. 1984) ("Even if some of the claimed combinations were inoperative, the claims are not necessarily invalid. . . . [I]f the number of inoperative combinations becomes significant, and in effect forces one of ordinary skill in the art to experiment unduly in order to practice the claimed invention, the claims might indeed be invalid." *Atlas Powder Co. v. E.I. Du Pont De Nemours & Co.*, 750 F.2d 1569, 1576-77, 224 USPQ 409, 414 (Fed. Cir. 1984). See also *EMI Group. North America, Inc. v. Cypress Semiconductor Corp.*, 268 F.3d 1342, 1350, 60. U.S.P.Q.2d 1423 (Fed. Cir. 2001).


As shown in the above evidence, the specification adequately teaches how to make and how to use a claimed invention without undue experimentation.

Withdrawal of the rejection is respectfully requested.

In view of the above, all claims are submitted to be allowable and this application is believed to be in condition to be passed to issue. Reconsideration of the rejections is requested. Should any questions remain unresolved, the Examiner is requested to telephone Applicant's attorney.

No fee is incurred by this Amendment.

Respectfully submitted,



Robert E. Bushnell,
Attorney for the Applicant
Registration No.: 27,774

1522 "K" Street N.W., Suite 300
Washington, D.C. 20005
(202) 408-9040

Folio: P56916
Date: 3/27/07
I.D.: REB/JHP